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In *Osmunda regalis*, *cinnamomea*, and *Claytoniana*, and *Todea rivularis* the same parts are present, the true annulus being situated upon the dorsum of the sporangium.

In all these families the sporangium is divided into halves at the time of dehiscence. The true annulus, the connectives and the lip cells perform identical functions in all. Were the annulus in any of them "complete," the highly developed mechanism which now serves the fern so perfectly in the dispersion of the spores would be defeated. During the eversion of a "complete" annulus the lateral walls of the sporangium would be torn to pieces and the spores would fall to the ground before the spring took place, and the present comparatively wide dispersion could not take place.

BOTANICAL DEPARTMENT, CORNELL UNIVERSITY.

Notes Upon a New Exobasidium.*

The genus *Exobasidium* is interesting in standing almost alone as containing parasites in the large group Thelephoreæ of the Hymenomycetous Fungi. Authors have differed as to the place the genus should hold in the classification, but Saccardo ignoring the views of Schroter and others, disposes of it as above stated. He describes eleven species, eight of which according to Farlow's Index are American. Of these only one is upon a host outside of the Heath family, namely, *Exobasidium Symploci*, E. & M. on *Symplocos tinctoria*, L. Her. The American species on Ericaceæ may be tabulated with the hosts as follows:

1. *Exobasidium Vaccinii* (Fl.) Woron.

On *Arbutus Menziesii*, *Arctostaphylus Uva-ursi*, *Cassiope tetragona*, *Gaylussacia resinosa*, *Rhododendron viscosum*, *Vaccinium macrocarpum*, *Vaccinium uliginosum*, *Vaccinium Vitis-Idaea*.

2. *Exobasidium Andromedæ*, Pk.

On *Andromeda ligustrina*.

3. *Exobasidium Azaleæ*, Pk.

On *Rhododendron nudiflorum*.

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*Read before the Botanical Club, A. A. A. S., Madison, Wis., August, 1893.

4. *Exobasidium discoideum*, Ell.
   On *Rhododendron viscosum.*
5. *Exobasidium Cassandræ*, Pk.
   On *Cassandra calyculata.*
6. *Exobasidium Arctostaphyli*, Hark.
   On *Arctostaphylos pungens.*
7. *Exobasidium decolorans*, Hark.
   On *Rhododendron occidentale*, and *Rhododendron viscosum.*

The seven species have twelve hosts, and *E. Vaccinii* has two-thirds of all. Three species are confined as far as yet known to a single host each, and *Rhododendron viscosum* bears three species.

From an economic standpoint the *E. Vaccinii* is the only species destructive to any crop, namely, to the cranberry. During this summer samples were sent me from Massachusetts asking for a remedy, the young stems being much distorted by the fungus.

The members of the genus as a rule are conspicuous, the general characteristic being a much swollen leaf or branch. The common azalea or Pinxter flower (*Rhododendron nudiflorum*) is known in many places as the "Swamp apple," because so generally producing upon the tips of the branches swollen masses, large as, and superficially somewhat resembles, green apples, the work of *E. Azaleæ*, Pk. In the same genus on *Rhododendron viscosum* is *E. discoideum*, Ell., which develops upon the under surface of the leaves large, turbinate or discoid galls two or more centemeters in diameter. The *E. Vaccinii* upon some hosts causes the stem to enlarge to many times its normal size. Galls of *E. Andromedæ*, Pk. are cupuliform and lobed, the hollow cavity containing cottony fibers and are, as the author states,* "lateral or rarely terminal on living branches, transforming the leaf buds."

On the 30th of May last the writer's attention was attracted to a group of *Andromeda Mariana* plants in a roadway near Farmingdale, N. J. The tips of the stems, instead of bending somewhat to one side and hanging full of the large white corolla bells characteristic of the species, were bolt upright, shorter than usual and bearing capitate masses of a pale green color. Upon inspection these were seen to be abnormally developed stems with their misshapen flowers in dense clusters. Some of the stems bore ordinary flowers a few inches below the malformed tips.

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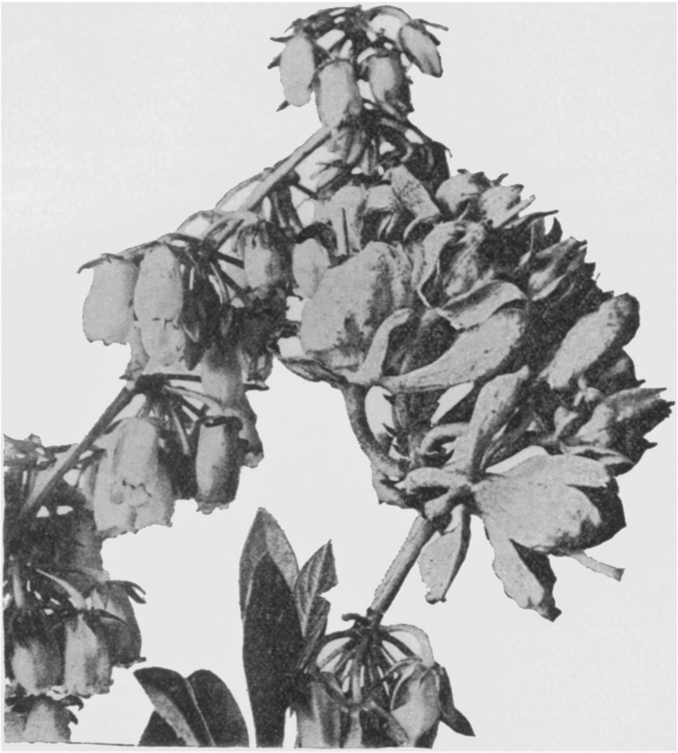
*Twenty-sixth Report of New York State Museum.

An examination assured me that the strange forms were due to an *Exobasidium*, and not being able to make it fit into any of the species described, was constrained to send specimens to Professor Peck, who is the author of three of the American species of *Exobasidiums*, including the one upon *Andromeda* above mentioned. He reported it as unknown to him. It is therefore with much pleasure that this second *Exobasidium* upon the *Andromeda* genus, the first bearing the generic name *Andromeda* by Professor Peck, is to be called *Exobasidium Peckii*, in honor of a life-long faithful laborer in American Mycology.



EXOBASIDIUM PECKII, HALS., CAUSING POLYPETALOUS FLOWERS IN ANDROMEDA MARIANA.

This species is remarkable in being confined almost entirely to the infloresences where it causes most extravagant enlargement and distortion of parts. Some of the single flowers are more than an inch in length and in spread of petals, the bell-shaped corolla being replaced by one that is wheel-shaped and polypetalous. A full study of all the abnormal floral organs might show points of structure of ordinary blossoms with added clearness and possibly throw light upon obscure parts. The ovary, for example, is raised a half inch or more above the receptacle and the peculiar placentæ greatly exaggerated.

The accompanying engraving is made from a photograph of a group of a healthy and an affected branch, and shows the abnormally exaggerated almost polypetalous flowers in striking contrast with the corolla bells of the ordinary form.

BYRON D. HALSTED.

RUTGERS COLLEGE, Aug. 2, 1893.

A new Station for Epipactis viridiflora (Hoffm.) Reichenb.

During the last summer one of my former students, Mr. H. B. Cushing, B. A., found an orchid on Mt. Royal, which, upon careful examination, proves to be what he at first took it for, *Epipactis viridiflora.* He first observed it on August 5th, growing on a rather dry, wooded hillside on the western slope of Mt. Royal, not far from the Côte des Neiges road, and in the vicinity of an old garden; at that time it was just coming into bloom. On August 25th, in the same locality, and within a small area, he found thirty or forty more specimens. Most of these had already gone out of flower, and some of them had ripened their seeds.

This discovery is of special interest, since, with the exception of the recently found station at Toronto,* there is no other known locality for this plant in Canada.

In 1820 and the following years, Dr. A. F. Holmes made a very thorough examination of the entire Island of Montreal, yet this species does not appear in his collection, nor is it to be found

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* Bull. Torr. Bot. Club xx. 36.